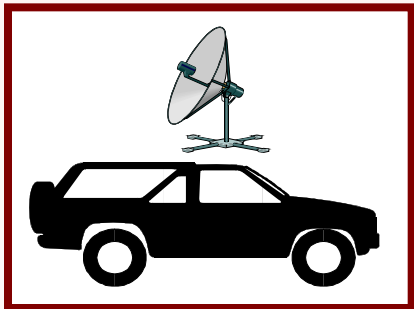
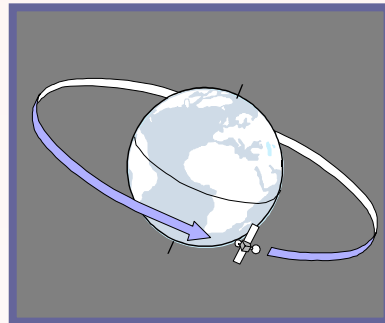




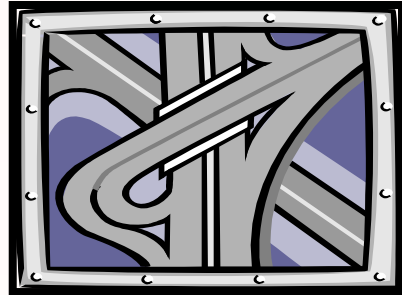
# *GPS-based Pricing Demonstration Project*



Puget Sound Regional Council  
**PSRC**



 **Washington State  
Department of Transportation**





**Background**

Technology

Project

Markets

# Background



# *Marginal-Cost Pricing*

## *Economic, Financial, and Social Goals*

Background

Technology

Project

Markets

- Optimize investments
  - Improve operational efficiency
  - Respect diverse needs and values
- } Management objectives
- Traditional road finance is a death-spiral  
Variable pricing stops the death-spiral



# *Destination 2030:*

## *Regional Plan Recommendations*

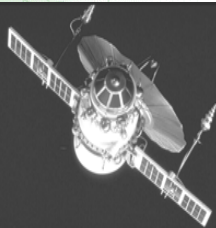
Background

Technology

Project

Markets

- Introduce variable roadway pricing where and when it is appropriate in this region.
- Explore and adopt transportation demand modeling improvements that better assess management strategies.
- Plan, design and implement a demonstration program prior to 2006.
- Develop and fund a detailed outreach effort.



# *FHWA Value Pricing Program*

Background

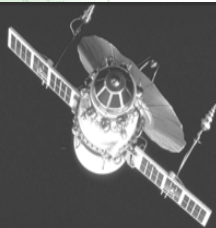
Technology

Project

Markets

- Provides technical and policy support.
- Helps finance and organize regional pricing conferences.
- Is a clearinghouse for information exchange.
- Awarded \$1.88 million in grant funds for the Puget Sound region study.





# Context for the Pricing Demonstration

Background

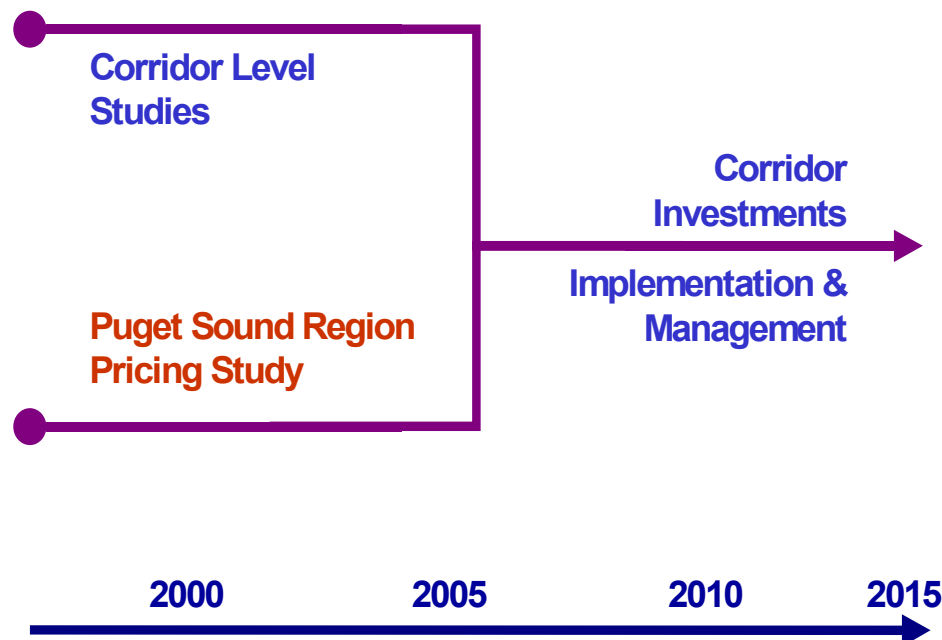
Technology

Project

Markets

- Pricing analysis to be coordinated with corridor studies
- Part of a broader effort to develop regional transportation financing capacity

## Transportation Infrastructure Investment Strategy





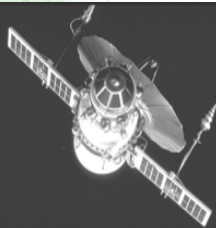
Background

**Technology**

Project

Markets

# The Technology



# *GPS Constellation*

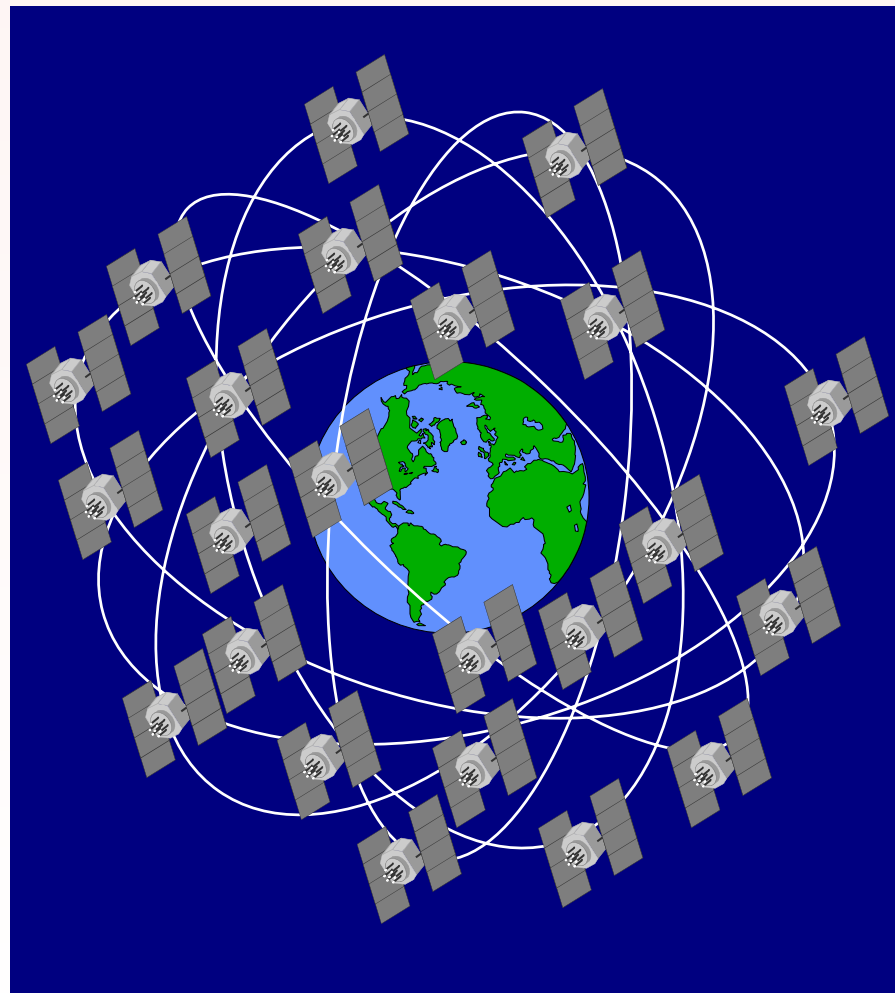
Background

Technology

Project

Markets

- Altitude of 20,000 km
- Orbital period of 12 hours
- Global coverage 24 hours per day
- At least five satellites visible at all times
- Full operational capability (FOC) declared by DOD in April, 1995
- Selective availability (SA) no longer an issue as of May, 2000







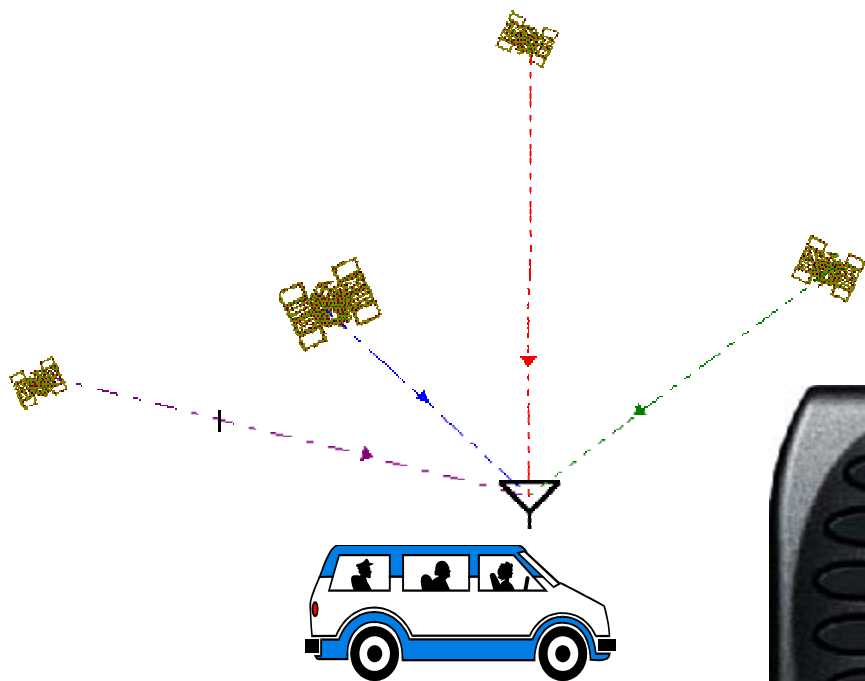
# VPS Applications

Background

Technology

Project

Markets





# Measurement Accuracy

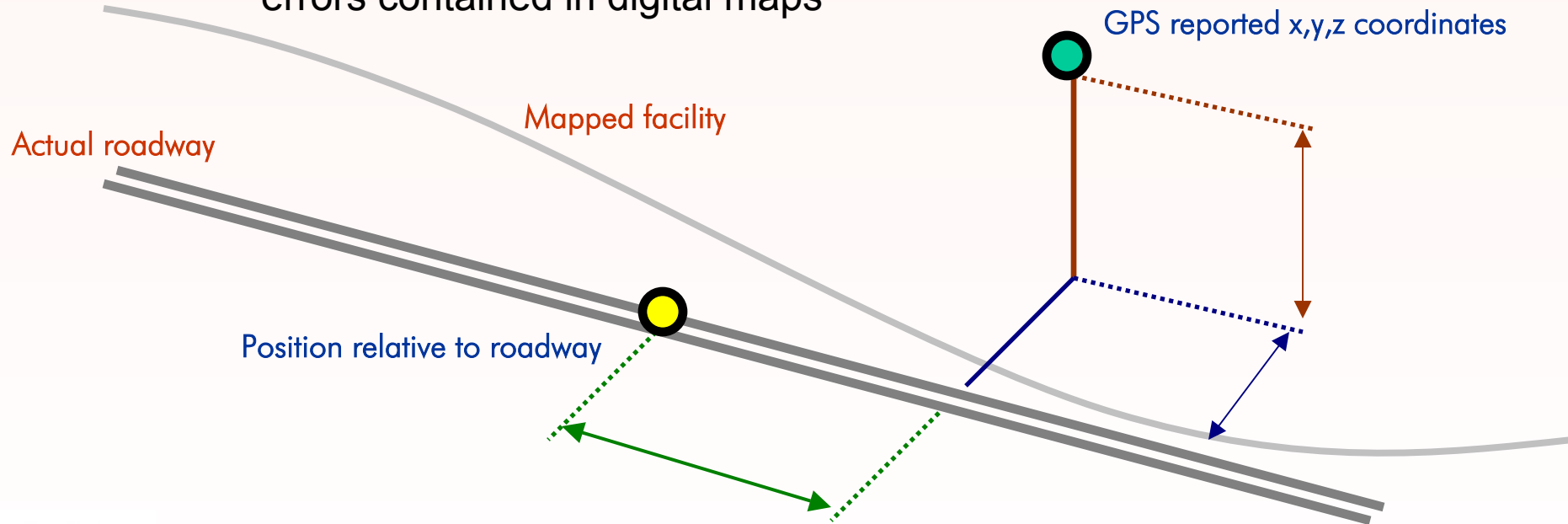
Background

Technology

Project

Markets

- GPS data involves elements of error, so standards of accuracy must be established and measurements verified
- Match mapping presents additional challenges due to errors contained in digital maps



# German Freight Charging "Toll Collects"

Background

Technology

Project

Markets

## Lastkraftwagen Maut Program

### Consortium

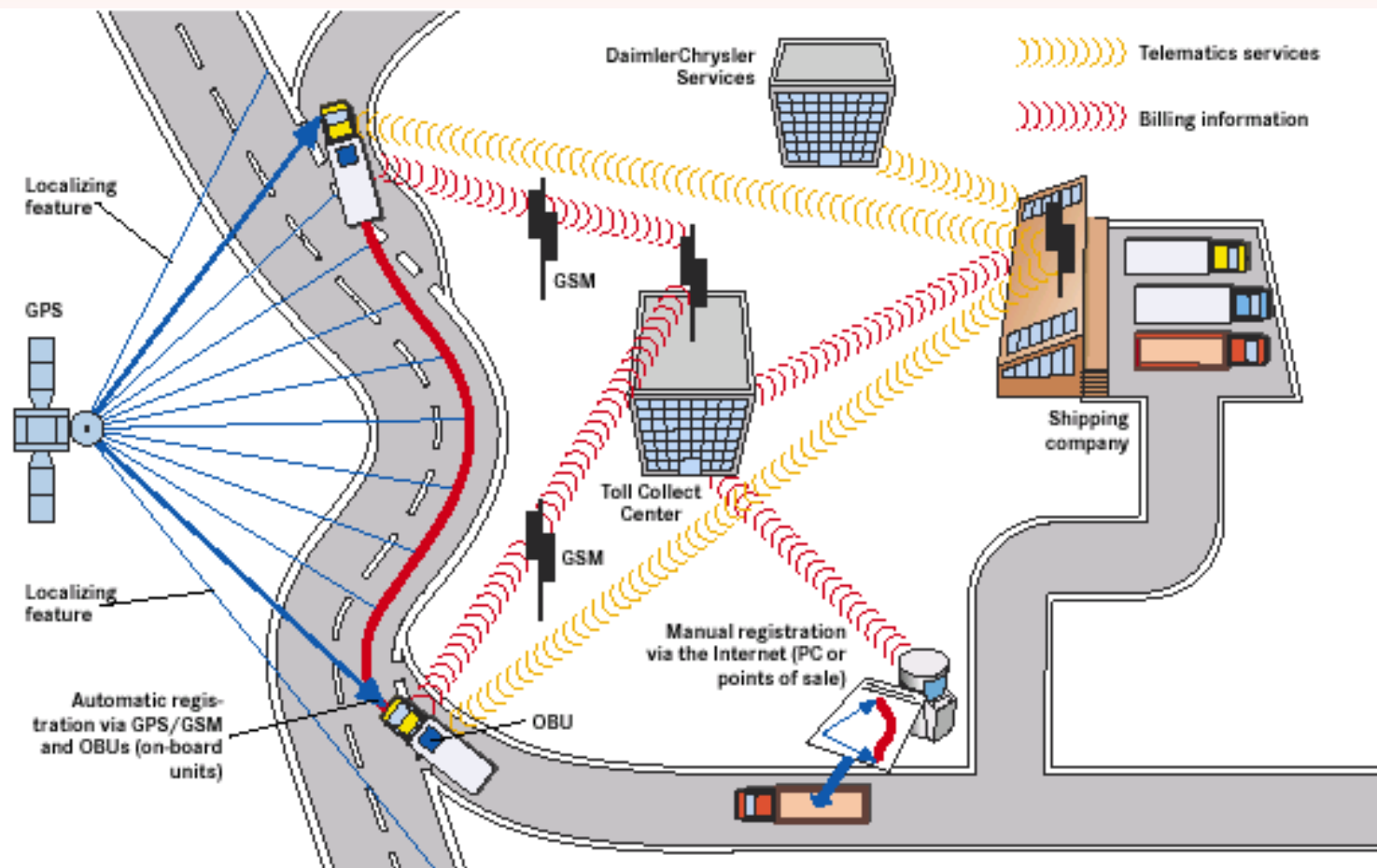
- DaimlerCrysler
- Deutsche Telekom
- Cofiroute

### System Testing

2 years completed  
By vendors

### Implementation

2003 ?





Background

Technology

**Project**

Markets

# Project



# Overview

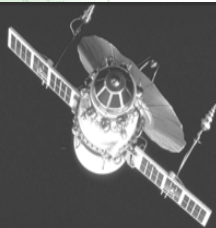
Background

Technology

**Project**

Markets

- A hold-harmless pilot project designed to understand user response to road pricing.
- Uses satellite technology (gps) to optimally price the roadway network.
- Tests technology, program design, behavior, broad policy implications, as well as public attitudes.



# *Structure*

Background

Technology

**Project**

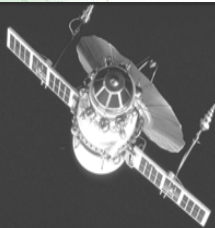
Markets

## **DEVELOPMENT PHASE**

1. Develop Price Structure and Framework
2. Determine GPS Utilization Technology
3. Develop Evaluation Methodology and Participant Sample Requirements

## **IMPLEMENTATION PHASE**

4. Preliminary Implementation of the Pilot Study
5. Full Project Implementation and Management
6. Assessment of Associated Policy Issues
7. Public Involvement and Public Relations Program
8. Project Evaluation



# *Outcomes*

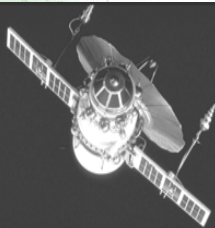
Background

Technology

**Project**

Markets

- Familiarize the public and policy-makers with a “real” application of road pricing.
- Develop understanding of technology components and applications.
- Generate user response to price data for use in other analytical efforts (corridor studies, travel models, revenue models).
- More finely define a set of policy issues to be addressed through actual program design.



# Timeline

Background

Technology

Project

Markets

TASKS	2002				2003												2004												2005					
	O	N	D		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J

## Pre Project Planning

- ▲ Signed contract with FHWA
- ▲ Begin project scope refinements
  - ▲ Issue bid documents
    - ▲ Consultant proposals due
    - ▲ Select consultant team

## Project - Phase 1

Develop Price Structure

Specify and Develop VPS Technology

Develop Sample and Evaluation Methods

## Project - Phase 2

Preliminary Implementation of the Pilot Study

Project Implementation and Management

Identification and Assessment of Associated Policy Issues

Evaluate Pilot Results

## Public Relations Program

LEGISLATIVE  
OVERSIGHT  
COMMITTEE

TIFA

TRANSPORTATION  
INFRASTRUCTURE  
FINANCING  
ALTERNATIVES

DECEMBER 16, 2002





Background

Technology

Project

**Markets**

# Markets



# *Managing Through Markets*

Background

Technology

Project

**Markets**

- A significant contribution to facility and system management – improved performance
- A self-financed investment in transportation technology applications
- Open new technology markets and integrate existing markets
- Real time travel and management information
- Other ITS applications increase public acceptance of active management strategies
- An approach that addresses recurring & non-recurring elements of congestion



# *Facilitated Through Technology*

Background

Technology

Project

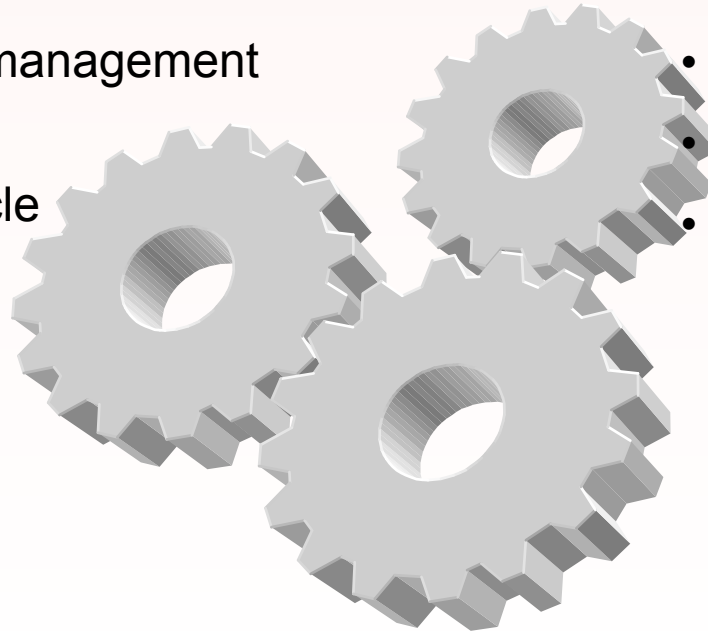
Markets

## Electronic Toll Collection

- In-vehicle two-way communication and data links
- Facility management
- Avenue for system management data collection
- Interface for in-vehicle display of real-time travel information

## ITS Functions

- Incident detection
- Traffic management
- Travel information
- Fleet management
- Route guidance
- Planning analysis





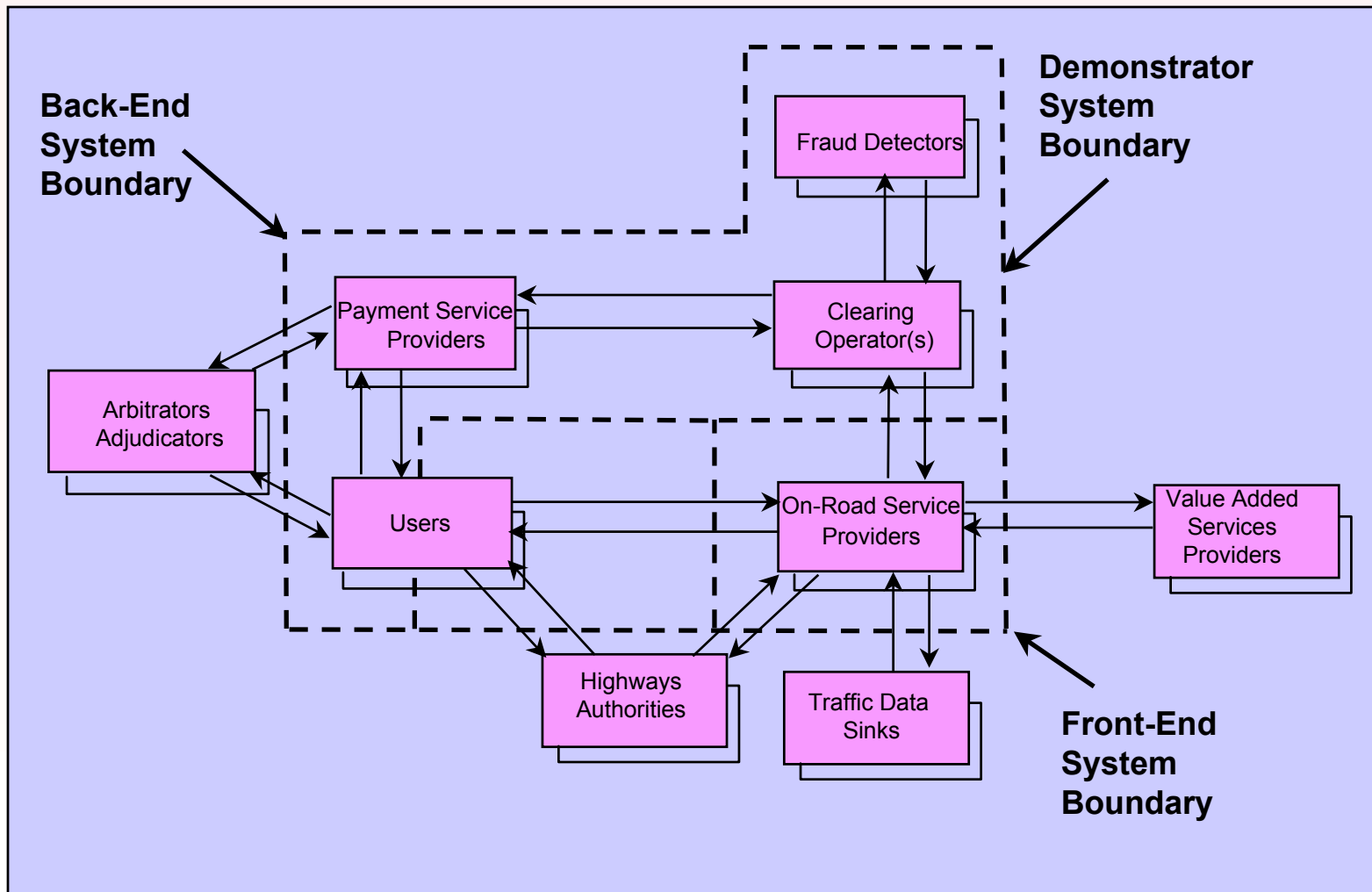
# Example Business Model: UK Road Charging

Background

Technology

Project

Markets





# *Evolving Lane Management*

Background

Technology

Project

**Markets**

- Managing for value not “values”
- Facilitate markets that allow individuals to choose according to their own preferences
- Efficiency improves when managed lanes become the standard not the option
- Technology needs to evolve as interest rises in system level approaches

